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USGS Chesapeake Bay Activities

Impact of a Modified Patch Clearcut on the Delmarva Fox Squirrel

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Principle Investigator(s):

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Statement of Problem: The Delmarva fox squirrel (*Sciurus niger cinereus*) is an endangered species found only in remnant patches of its former range. Fragmentation of its preferred habitat, switching from saw timber to pulpwood production, and shifting from mixed-species forest management to monoculture pine plantations pose increasingly serious threats to the long-term stability of Delmarva fox squirrel populations. Forest fragmentation causes isolation of squirrel populations, which increases the probability of local extinction. Shifting from mixed-species forest management to pine plantations causes the elimination of food resources critical to fox squirrels such as maple buds and acorns. Shifting from saw timber to pulpwood production results in shorter forest rotations, which causes the mean forest age on the peninsula to decrease, jeopardizing fox squirrels that depend on mid- to late-succession forests.

Objectives: 1) to investigate the impact of a modified patch clearcut on the density, age- and sex-specific survivorship and dispersal rates, and habitat correlates for Delmarva fox squirrels, 2) to refine and standardize data collection and survey techniques for squirrels and their habitat.

Approach: Three treatment sites were established within the Forest Demonstration Forest owned by The Conservation Fund, and three reference sites were chosen within Chesapeake Marshlands National Wildlife Refuge Complex – Blackwater Unit. All sites were gridded with lines 100 meters apart and with trap points every 50 meters on each

line. Pre-treatment capture-recapture data were collected from the spring 1996 through the spring of 1998 to determine baseline estimates on the density, demography, and movements of Delmarva fox squirrels and gray squirrels (*S. carolinensis*) on all sites. Radio telemetry was done on 11 fox squirrels in the 3 treatment sites during 1997 to determine base-line habitat use. The timber harvest was initiated on 1 of the 3 treatment sites (TCF2) in late August of 1998, and was nearly completed. Radio telemetry was conducted on 12 fox squirrels in the three treatment sites before, during, and after this partial harvest. The harvest was completed on all three treatment sites during the summer of 1999, and radio telemetry was conducted on 25 fox squirrels before, during and after that final harvest. Post-harvest capture-recapture data was started on all 6 sites in the fall of 1999 and continued every spring and fall through 2002.

Selected Reports and Other Products:

Report, Delivered: Carol Bocetti and Oliver Pattee, Annual report on research activities to the Recovery Team and to state cooperators, USGS

Report, Delivered: Carol Bocetti, Oliver Pattee, Effects of timber harvest on DFS: Report to the Recovery team 8/12/03, USGS

Relevance and Benefits: This task addresses goal 3 of the Wildlife and Terrestrial Resources Program—Evaluate status of plant and animal species at risk and provide scientific guidance for their conservation and management.